

Application No.: 10/826,866

Office Action dated: January 16, 2007

Response to Office Action dated: April 5, 2007

In the Claims:

1. (Currently Amended) A sterile disposable apparatus to heat solution comprising:

a housing made of a shock absorbent and thermal insulating material, the housing defining a plurality of inner chambers, an outer surface of the housing defining an inlet communicating with the inner chambers;

reactants disposed within the inner chambers that when intermixed form at least one prolonged exothermic reaction;

a hollow receptacle formed by the inner chambers;~~and~~

a fluid disposed in the hollow receptacle and to be heated by the reactants;

and

the inlet being self-sealing and the hollow receptacle being configured to allow instruments to be inserted through the inlet and submerged in and heated via the heated fluid, and to prevent the fluid from spilling out of the inlet.

2. (Previously Presented) A sterile disposable apparatus to heat solution as in claim 1, wherein the housing is configured to be attachable to an external surface.

3. (Currently Amended) A sterile apparatus for heating liquids comprising:

a casing made of a shock absorbent and thermal insulating material, the casing defining a plurality of inner chambers, an outer surface of the casing defining an inlet communicating with the inner chambers;

reactants disposed within the inner chambers that when intermixed form at least one prolonged exothermic reaction;

a solution receptacle disposed within the inner chambers;~~and~~

a chemical fluid disposed in the receptacle and to be heated by the reactants;

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and

the inlet being self-sealing and the receptacle being configured to allow an instrument to be inserted through the inlet and to be submerged in and heated via the heated chemical fluid, and to prevent the chemical fluid from spilling out of the inlet.

4. (Previously Presented) A sterile disposable apparatus to heat solution as in claim 3, wherein the casing is configured to be attachable to an external surface.

5. (Previously Presented) A sterilized endoscopic scope defogger comprising:

a casing made of an insulated substantially rigid material, the casing having sidewalls defining a plurality of sidewall chambers and a central chamber, an outer surface of the casing defining an inlet of a cavity communicating with the central chamber to allow a surgical scope to be inserted into the central chamber through the inlet of the cavity;

exothermic reactive chemicals including a catalyst disposed within the sidewall chambers;

a defogging solution disposed within the central chamber and to be heated by the exothermic reactive chemicals, and wherein the sidewall chambers configured to be breachable to create a sustained exothermic reaction in order to heat a surgical scope submerged in and heated via the heated defogging solution; and

the cavity being self-sealing and configured to allow a surgical scope to be inserted through the inlet of the cavity and to be submerged in and heated via the defogging solution, and to prevent the defogging solution from spilling out of the inlet of the cavity.

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6. (Previously Presented) An endoscopic scope defogger as in claim 5 wherein the cavity is configured for receiving a distal end of an endoscopic lens in order to submerge the distal end in the defogging solution.
7. (Canceled)
8. (Previously Presented) An endoscopic scope defogger as in claim 5 wherein the catalyst for the heating reaction is in gel form in order to achieve a time delay reaction.
9. (Previously Presented) An endoscopic scope defogger as in claim 5 wherein said casing includes a shock absorbent material.
10. (Previously Presented) An endoscopic scope defogger as in claim 5 wherein said casing has an adhesive coupled thereto.
11. (Previously Presented) An endoscopic scope defogger as in claim 10 wherein said adhesive is hook and loop fasteners.
12. (Previously Presented) An endoscopic scope defogger as in claim 5 further comprising a wiping cloth coupled to an outer surface of the casing.
13. (Previously Presented) An endoscopic scope defogger as in claim 12 wherein said wiping cloth is impregnated with a defogging solution.
14. (Previously Presented) An endoscopic scope defogger as in claim 5 wherein said casing is made of a disposable material.

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15. (Previously Presented) An endoscopic scope defogger as in claim 5 wherein said casing has a compact configuration.

16. (Currently Amended) A compact portable sterile scope defogger comprising:

a casing made of an insulated substantially rigid material, an interior of the casing defining a plurality of divided compartments including breachable periphery compartments and a central compartment, an outer surface of the casing defining an inlet of a cavity communicating with the central compartment;

a predefined number of chemicals disposed in the periphery compartments to achieve a plurality of exothermic reactions upon breaching of the periphery compartments; and

a defogging solution disposed within the central compartment and to be heated by the chemicals, and wherein the cavity is configured to be self-sealing and the central compartment being shaped to allow a surgical scope to be inserted through the inlet of the cavity into the central compartment and submerged in and heated via the heated defogging solution; and to prevent the defogging solution from spilling out of the central compartment and out of the inlet of the cavity.

17. (Currently Amended) A disposable compact portable sterile scope defogger comprising:

a casing made of an insulated substantially rigid material, the casing defining a plurality of periphery compartments and a central compartment, an outer surface of the casing defining an inlet of a cavity communicating with the central compartment to allow a surgical scope to be inserted into the central compartment through the inlet of the cavity;

chemicals disposed in a portion of the periphery compartments;

reactive metals disposed in another portion of the periphery compartments

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adjacent to outer sidewalls of the central compartment;

ducts interconnecting the periphery compartments;

breachable membranes separating the periphery compartments, the
breachable membranes being configured to be breachable for intermingling of the
chemicals to generate an exothermic reaction and for gases generated by the
exothermic reaction to travel through the ducts such that the reactive metals react
with the gas to further generate a sustained exothermic reaction and to transfer heat
to the central compartment; and

a defogging solution disposed in the central compartment and to be heated by
the chemicals, and wherein the cavity is configured to be self-sealing and the central
compartment being shaped to allow a surgical scope to be inserted through the inlet
of the cavity into the central compartment and submerged in and heated via the
defogging solution, and to prevent the heated defogging solution from spilling out
of the central compartment and out of the inlet of the cavity.

18. (Currently Amended) A disposable compact portable sterile scope
defogger comprising:

a casing made of an insulated substantially rigid material, the casing defining
a plurality of periphery compartments and a central compartment, an outer surface
of the casing defining an inlet of a cavity communicating with the central
compartment to allow a surgical scope to be inserted into the central compartment
through the inlet of the cavity;

chemicals disposed in a portion of the periphery compartments;

reactive metals disposed in another portion of the periphery compartments
adjacent to outer sidewalls of the central compartment;

ducts interconnecting the periphery compartments;

breachable membranes separating the periphery compartments, the
breachable membranes being configured to be breachable for intermingling of the

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chemicals to generate an exothermic reaction and for gases generated by the exothermic reaction to travel through the ducts such that the reactive metals react with the gas to further generate a sustained exothermic reaction and to transfer heat to the central compartment, and the membranes each retaining a different decomposition characteristic; and

a defogging solution disposed in the central compartment and to be heated by the chemicals, and wherein the cavity is configured to be self-sealing and the central compartment being shaped to allow a surgical scope to be inserted through the inlet of the cavity into the central compartment and submerged in and heated via the defogging solution, and to prevent the heated defogging solution from spilling out of the central compartment and out of the inlet of the cavity.

19. (Canceled)

20. (Currently Amended) A compact portable sterile scope defogger comprising:

a casing made of an insulated substantially rigid material, the casing defining a central compartment and a plurality of divided periphery compartments including breachable periphery membranes each having a different decomposition characteristic, the central compartment being defined by sidewalls of the periphery compartments, an outer surface of the casing defining an inlet of a cavity communicating with the central compartment to allow a surgical scope to be inserted into the central compartment through the inlet of the cavity;

a predefined number of chemicals disposed within the periphery compartments to achieve a plurality of exothermic reactions upon breaching of the periphery membranes; and

a defogging solution disposed within the central compartment and to be heated by the chemicals, and wherein the cavity is configured to be self-sealing and

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the central compartment being shaped to allow a surgical scope to be inserted through the inlet of the cavity into the central compartment and be submerged in and heated via the defogging solution, and to prevent the heated defogging solution from spilling out of the central compartment and out of the inlet of the cavity.

21. (Currently Amended) A disposable compact portable sterile scope defogger comprising:

a casing made of an insulated substantially rigid material, the casing defining a central compartment and a plurality of periphery compartments, an outer surface of the casing defining an inlet of a cavity communicating with the central compartment to allow a surgical scope to be inserted into the central compartment through the inlet of the cavity;

chemicals disposed in a portion of the periphery compartments;

a chemical reaction catalyst disposed within another portion of the periphery compartments, the catalyst being in the form of a gel to achieve a time delayed reaction;

reactive metals disposed in a further portion of the periphery compartments adjacent to outer sidewalls of the central compartment;

ducts interconnecting the periphery compartments;

breachable membranes separating the periphery compartments, the breachable membranes each having a different decomposition characteristic, the breachable membranes being configured to be breachable for intermingling of the chemicals to generate an exothermic reaction and for gases generated by the exothermic reaction to travel through the ducts such that the reactive metals react with the gas to further generate a sustained exothermic reaction and to transfer heat to the central compartment; and

a defogging solution disposed in the central compartment and to be heated by the chemicals, and wherein the cavity is configured to be self-sealing and the central

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compartment being shaped to allow a surgical scope to be inserted through the inlet of the cavity into the central compartment and submerged in and heated via the defogging solution, and to prevent the heated defogging solution from spilling out of the central compartment and out of the inlet of the cavity.

22. (Previously Presented) A compact portable sterile scope defogger comprising:

a casing made of an insulated substantially rigid material, the casing defining a plurality of periphery compartments and a central compartment formed by sidewalls of the periphery compartments, an outer surface of the casing defining an inlet of a cavity communicating with the central compartment to allow a surgical scope to be inserted into the central compartment through the inlet of the cavity, the periphery compartments each including a breachable membrane having a different decomposition characteristic;

a predefined number of chemicals disposed in the periphery compartments to achieve a multiplicity of exothermic reactions upon breaching of the breachable membranes; and

a defogging solution disposed in the central compartment and to be heated by the chemicals, and wherein the cavity is configured to be self-sealing and the central compartment being shaped to allow a surgical scope to be inserted through the inlet of the cavity into the central compartment and submerged in and heated via the defogging solution, and to prevent the heated defogging solution from spilling out of the central compartment and out of the inlet of the cavity.

23. (Currently Amended) A disposable compact portable sterile scope defogger comprising:

a casing made of an insulated substantially rigid material, the casing defining a plurality of periphery compartments and a central compartment, an outer surface

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of the casing defining an inlet of a cavity communicating with the central compartment to allow a surgical scope to be inserted into the central compartment through the inlet of the cavity;

chemicals disposed in a portion of the periphery compartments;

a chemical reaction catalyst disposed within another portion of the periphery compartments, the catalyst being in the form of a gel to achieve a time delayed reaction;

reactive metals disposed in a further portion of the periphery compartments adjacent to outer sidewalls of the central compartment;

ducts interconnecting the periphery compartments;

breachable membranes separating the periphery compartments, the breachable membranes being configured to be breachable for intermingling of the chemicals to generate an exothermic reaction and for gases generated by the exothermic reaction to travel through the ducts such that the reactive metals react with the gas to further generate a sustained exothermic reaction and to transfer heat to the central compartment, and the membranes each retaining a different decomposition characteristic;

electrical wiring embedded within the central compartment, the electrical wiring being configured to be electrically coupled to a power source to produce additional heating; and

a defogging solution disposed in the central compartment and to be heated by the chemicals, and wherein the cavity is configured to be self-sealing and the central compartment being shaped to allow a surgical scope to be inserted through the inlet of the cavity into the central compartment and submerged in and heated via the defogging solution, and to prevent the heated defogging solution from spilling out of the central compartment and out of the inlet of the cavity.

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24. (Currently Amended) A disposable compact portable sterile scope defogger comprising:

a casing made of an insulated substantially rigid material, the casing defining a plurality of periphery compartments and a central compartment, an outer surface of the casing defining an inlet of a cavity communicating with the central compartment to allow a surgical scope to be inserted into the central compartment through the inlet of the cavity;

chemicals disposed in a portion of the periphery compartments;

a chemical reaction catalyst disposed within another portion of the periphery compartments, the catalyst being in the form of a gel to achieve a time delayed reaction;

reactive metals disposed in a further portion of the periphery compartments adjacent to outer sidewalls of the central compartment;

ducts interconnecting the periphery compartments;

breachable membranes separating the periphery compartments, the breachable membranes being configured to be breachable for intermingling of the chemicals to generate an exothermic reaction and for gases generated by the exothermic reaction to travel through the ducts such that the reactive metals react with the gas to further generate a sustained exothermic reaction and to transfer heat to the central compartment, and the membranes each retaining a different decomposition characteristic;

electrical wiring embedded within the central compartment;

an AC recharger base configured to receive the casing and to be coupled to the electrical wiring to produce additional heating; and

a defogging solution disposed in the central compartment and to be heated by the chemicals, and wherein the cavity is configured to be self-sealing and the central compartment being shaped to allow a surgical scope to be inserted through the inlet of the cavity into the central compartment and submerged in and heated via the

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defogging solution, and to prevent the heated defogging solution from spilling out of the central compartment and out of the inlet of the cavity.

25. (Previously Presented) A method to defog a surgical scope comprising:

providing a thermally insulated container having a housing defining an inlet for receiving a scope, a defogging solution disposed within the inlet, the inlet being self-sealing to prevent the defogging solution from spilling out of the inlet, and breachable chambers containing reactants for heating the defogging solution;

breaching the compartments containing the reactants to produce a sustained exothermic reaction to heat the defogging solution; and

periodically inserting a scope as needed during a surgical procedure within the inlet and submerging the scope in the heated defogging solution to heat the scope via the defogging solution.

26. (Previously Presented) A method to defog a surgical scope comprising:

providing a thermally insulated container having a housing defining an inlet for receiving a scope, a defogging solution disposed within a central compartment in the inlet, the inlet being self-sealing to prevent the defogging solution from spilling out of the inlet;

heating the central compartment to thereupon heat the defogging solution; and

periodically inserting a scope as needed during a surgical procedure within the inlet and submerging the scope in the heated defogging solution to heat the scope via the defogging solution.